

Televes®

FIBRE OPTIC RANGE

PRODUCT GUIDE **2016/2017**



Televes®

PASSION FOR QUALITY

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FIBRE OPTIC RANGE

PRODUCT GUIDE 2016/2017



Over the years, fibre optic has gradually become a more cost effective alternative to our traditional coaxial systems. Fibre helps overcome limitations in terms of covering great distances not possible with coaxial systems.

The experience gained throughout these years and our constant drive to innovate, has allowed Teledesic to bring you one of the most comprehensive ranges of products that will allow you to build your TV systems or even data systems over fibre. From point to point 1310nm or 1550nm transmitters and receivers to multipoint integrated reception systems over fibre, Teledesic offers a one stop shop when it comes to fibre optics.

IRS FIBRE

RF/FO CONVERTERS

MDU CONVERTERS

Located at the end points of the IRS Fibre Optic distribution network, these MDUs convert the FO signal back to RF.

Ref. 236903 works as a QUAD LNB and Ref. 237003 works as a QUATTRO LNB and it also can convert DTT, DAB and FM signals back to RF.



▲ 236903



▲ 237003

MAIN FEATURES

- ✓ FC/PC input connector
- ✓ Direct or remote powering through any output

Ref.	Description
236903	Quad Terrestrial MDU Version III
237003	Quattro Terrestrial MDU Version III

Reference			236903	237003		
OPTICAL	Wavelength		nm		1100 to 1650	
	Return losses		dB		45	
	Input power range		dBm		-15...0	
RF OUTPUT FM / DAB / DTT	RF Frequency Range		MHz		88 - 790	
					47 - 862	
					FM 88 - 108	
					DAB 174 - 240	
					DTT 470 - 790	
	Return loss		dB		≥ 10	
	Nominal Impedance		ohm		75	
	Typical Output levels	No of Multiplexes	dBμV		FM/DTT	
			1 channel	6 channels	76	82
			72	78		
Gain Variation Across Band		dB		≤ 5		
Satellite Rejection		dB		20	35	
RF OUTPUT SATELLITE	Horizontal High Band		MHz		1100-2150 ≥15.5V + 22KHz	
	Vertical High Band		MHz		1100-2150 ≤14.5V + 22KHz	
	Horizontal Low Band		MHz		950-1950 ≥15.5V	
	Vertical Low Band		MHz		950-1950 ≤14.5V	
	Return Loss		dB		≥10	
	Nominal Impedance		Ohm		75	
	Gain Variation Across Band		dB		≤7	
Terrestrial Rejection		dB		30		
OIP3 ⁽¹⁾		dBμV		70	78 ⁽²⁾	
ELECTRICAL	Powering voltage		V		10 to 20 by AC/DC adaptor or Set Top Box	
	Current consumption		mA		10.5 to 20 by AC/DC adaptor or satellite outputs	
MECHANICAL	Connectors	Optical output		Type		FC/PC
		DVB-T/DAB input				4 x F-female
	Operating temperature		°C		-15 to +55	
	Weight		g		330	175
Dimensions (X x Y x Z)		mm		129 x 117 x 27	121 x 80 x 26.5	

1 The theoretical output level at which the third-order two-tone distortion products are equal in power to the desired signals.

2 Satellite switch - high gain position. An oscillation can occur due to satellite transmission levels.

3 The equipment consumption will be all supported by the high voltage (PSU or Satellite outputs)



ODU KIT

Stack the 4 satellite polarities and combine DTT, DAB and FM signals into one fibre.

MAIN FEATURES

- ✓ 2 optical outputs
- ✓ Optic Power Level from 6 to 8 dBm

Ref.	Description
236801	RF/Optical Converter ODU32 "F"- "N"- "FC/PC": DAB/UHF-SAT + Offset LNB + AC/DC Adapter + Interconnection Accessories



▲ 236801

Reference			236801 RF/FO Converter		
OPTICAL	Wavelength	nm	1310		
	Optical power per output connector	dBm	6 to 8		
DAB / DVB-T	Input frequency	DAB / DTT	MHz	217...230 / 470...862	
	Impedance		Ohm	75	
	Input levels ⁽¹⁾	No of Multiplexes	1 channel	dBμV	95
			4 channels	dBμV	90
			8 channels	dBμV	85
	Gain		dB	15...45	
	AGC range		dB	25	
	Noise figure at max gain		dB	10	
	OIP3 ⁽¹⁾		dBμV	134	
	Rejection (950-2150 MHz)		dB	20	
SAT	Input frequency	Vertical/Horizontal polarisations	MHz	950...3000 / 3400...5450	
	Impedance		Ohm	50	
	Input level		dBμV	96 to 111	
	AGC range (min)		dB	15	
	Noise figure at max gain		dB	12	
	OIP3 (min) ⁽²⁾		dBμV	129	
	Rejection (217-862 MHz) (min)		dB	20	
	Powering voltage (through F connector)		Vdc	12	
ELECTRICAL	LNB powering voltage (through F connector)		Vdc	6,2	
	Current consumption (including optical LNB)		mA	500	
	Connectors	Optical output	Type	FC/PC	
Satellite input		Type	N female		
DVB-T/DAB input		Type	F female		
Power input		Type	F female		
MECHANICAL	Operating temperature	°C	-30 to +60		
	Weight	g	545		
	ODU Dimensions (W x H x D)	mm	168 x 160 x 30		

1 DAB must be 15 dB below DTT.

2 The theoretical output level at which the third-order two-tone distortion products are equal in power to the desired signals.

IRS FIBRE

OPTICAL RECEPTION

OPTICAL LNBs

Stack both horizontal and vertical polarities into a single IF frequency.

MAIN FEATURES

- ✓ Noise figure of 0.5 dB
- ✓ Average gain of 72 dB



▲ 2353



▲ 235310

Ref.	Description
2353	Optical LNB SAT only - 34 PON - "FC/PC" Connectors
235310	Optical LNB SAT only - 64 PON - "FC/PC" Connectors

Reference		2353	235310		
Input frequency	GHz	10.7...12.75			
Output frequency	GHz	0.95...5.45			
Wavelength	nm	1310			
Local oscillators	GHz	9.75(Vertical) / 7.30 (Horizontal)			
Optical output power	from -30 to +60 °C	dBm			
Noise figure		7±2			
Gain	from -30 to +60 °C	dB			
Phase noise maximum limit	offset frequency (KHz)	1	-55		
		10	-80		
		100	-100		
		1000	-110		
Local oscillator stability	MHz	±2			
Crossed polarization rejection	dB	30 typ.			
Powering	Vdc	12	10		
Current consumption	mA	<250	<160		
Operating temperature	°C	-30...60			
Connectors	DC input	Type			
	Optical output	F-female			
Weight	g	435			
Dimensions	mm	170 x 98 x Ø 68			
Accessories					
FC/PC connector protection	Units	1			
Female F to Female F connector	Units	1			
Stand alone AC PSU	mains input	voltage	Vac	100-240	
		frequency	Hz	50/60	
	output	voltage	Vdc	12	20
		current	mA	500	1000



T.OX

FO TRANSMITTERS

T.OX^{SERIES} RANGE

Comprehensive range of Point to Point FO transmitters that convert the RF signal processed by a headend (54 - 2150 MHz) into a distortion-free optical signal for distribution over fibre (1310 or 1550 nm).

MAIN FEATURES

- ✓ Optical output power up to 10 dBm
- ✓ High energy efficiency
- ✓ State LED of the optical output signal
- ✓ Alarm (optical level below the minimum input level)



Ref.	Description
233306	FO Transmitter - 1310nm - FM/DAB/UHF/SAT - 6dBm
233311	FO Transmitter - 1310nm - FM/DAB/UHF/SAT - 10dBm
234305	FO Transmitter - 1550nm - FM/DAB/UHF/SAT - 4dBm

Reference				233306	233311	234305	
INPUT	RF	Frequency range	MHz	54...2150			
		Max. input level for CSO & CTB ≥ 60 dB ¹	54 - 870 MHz	dBmV	31	27	25
			950 - 2150 MHz			20	
		Equivalent input noise figure @ 850 MHz		dBm/Hz		- 150	
		Equivalent input noise figure @ 2 GHz				- 146	
		Regulation margin		dB		0 - 18	
		Return losses				≥ 10	
		Impedance	Ω		75		
OUTPUT	FO Forward path	Wavelength	nm	1310 ±20		1550 ±20	
		Optical power transmitted (max)	mW/dBm	4/6	10/10	2.5/4	
		Optical connector		SC/APC			
GENERAL	Powering voltage	Vdc	12 - 24				
	Consumption 24Vdc	mA	104	140	140		
	RF connectors		female F				
	Dimensions (W x H x D)	mm	50 x 216 x 175				

¹ Input: 41 TV CH CENELEC and 1 complete satellite transponder. The input attenuator in 0 dB position.

T.OX^{SERIES} RANGE

Convert the FO signal back to RF to distribute over a coaxial distribution system. Ref. 2336 also allows FO transmission through the return channel.

MAIN FEATURES

- ✓ Multi-window input (1200 to 1600 nm)
- ✓ Wide input dynamic range (from -10 to 6 dBm)
- ✓ Maximum level of the RF output:
114 dBuV for MATV/117 dBuV for SAT IF
- ✓ Regulator to adjust the optical signal and prevent it from degrading the RF output (in case of a excessive optical power level)
- ✓ State LED of the optical input signal
- ✓ Alarm relay (if the optical level go down the minimum level)



Ref.	Description
2335	FO Receiver - 1200...1600nm - FM/DAB/UHF/SAT
2336	FO Receiver - 1200...1600nm - FM/DAB/UHF/SAT with Return Channel (1310 nm 3 dBm)

Reference				2335	2336
INPUT	FO Forward path	Wavelength	nm	1200...1600	
		Detection bandwidth	MHz	1...3000	
		Optical power received (max)	dBm	4/6	
		Optical connector		SC/APC	
	FO Return path	Frequency range	MHz	-	
		Return path input level DIN45004B	dBμV	-	95
		Equivalent input noise figure @ 30 MHz	dBm/Hz	-152.5	
	Return losses	dB	-	≥ 11	
	Impedance	Ω	-	75	
OUTPUT	RF Forward path	Frequency range	MHz		
		Max. output level for CSO & CTB ≥ 60 dB ¹	dBμV/dBmV	93 / 33	
		Regulation margin		90 / 30	
		Return losses	dB	0 - 18	
		Impedance	Ω	≥ 11	
	FO Return path	Wavelength	nm	-	1310
		Optical power transmitted (max)	dBm	-	
Optical connector			-	SC/APC	
GENERAL	Powering voltage	Vdc	12 - 24		
	Consumption 24Vdc	mA	155	175	
	Ingress protection	IP	20		
	Dimensions (W x H x D)	mm	50 x 216 x 175		

¹ Input: 42 TV CH CENELEC and 1 complete satellite transponder. The output attenuator in 0 dB position.



FO AMPLIFIERS

T.OX^{SERIES} RANGE

20dBm EDFA rack-mounted amplifier to use with 1550 nm wavelength signals.

Erbium-Doped Fibre Amplifiers (EDFA) make use of a relatively high-powered beam of light that is combined with the input signal and then guided into a section of fibre with erbium ions in the core, where this high-powered beam excites the ions to release some of their energy, in the same phase and direction, to the input signal.

MAIN FEATURES

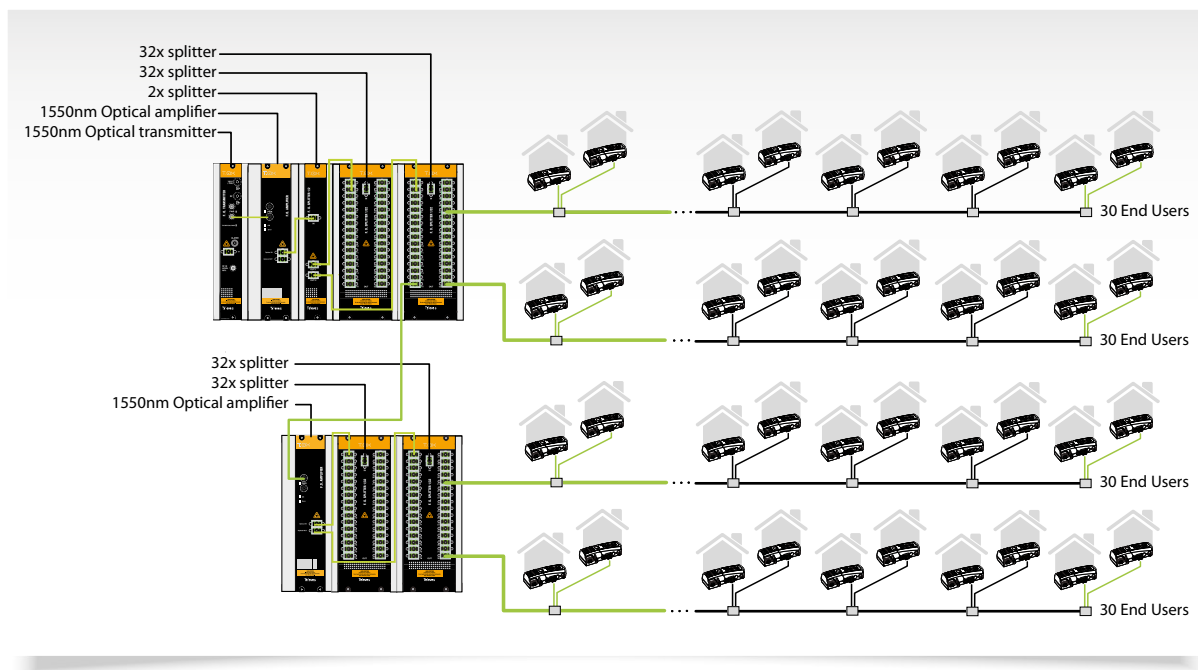
- ✓ High output power
- ✓ Wide input range
- ✓ Low noise figure



Reference			234220
OPTICAL INPUT	Input optical power range	dBm	-3 ~ +10
	Input connector	Type	SC/APC
OPTICAL OUTPUT	Output optical power	dBm	20 ± 0,8
	Output connector	Type	SC/APC
	Noise figure	dB	≤ 5 (for 0 dBm)
	Optical return losses	dB	≥ 50
GENERAL	Wavelength	nm	1550
	Powering	Vdc	24
	Consumption @ 24 Vdc	mA	410 max.
	Ingress protection level	IP	20
	Dimensions (WxHxD)	mm	75 x 216 x 175

Ref.	Description
234220	Optical amplifier 1550nm "SC/APC" 20dBm

Application example: Use of optical amplifiers to feed more than 32 end users.



DOMESTIC RECEIVERS

Ref. 2311,231110 and 231111 have been designed as compact domestic devices for MATV and SMATV over FO systems.

Ref. 2311 is prepared to be used as a receiver in SMATV systems and provides a stable RF output signal thanks to its Automatic Gain Control.

Ref. 231110 has been designed to MATV systems and provides a stable RF output regardless of the optical input power* using its OLC feature (Optical Losses Control) at the optical input. It also provides a C/N over 50 dB and an average consumption of only 1.7W.

Ref. 231111 converts into its original RF format the TV signal which was previously converted into optical for the transmission through an optical network. . Due to OLC it will balance the output signal regardless of the number of channels.

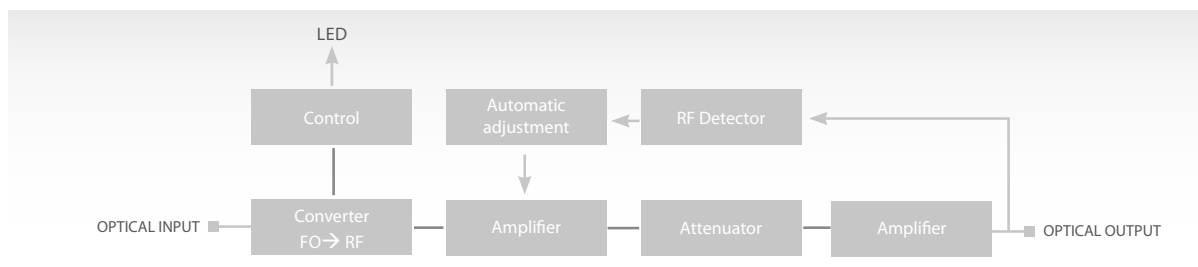


▲ 2311

Ref.	Description
2311	Domestic FO Rx MATV "SC/APC" AGC (Automatic Gain Control)
231110	Domestic FO Rx MATV "SC/APC" OLC (Optical Level Control)
231111	Domestic FO Rx MATV "SC/APC" OLC (Optical Level Control)

*Levels within specifications margin.

BLOCK DIAGRAM



Reference			2311	231110	231111
OPTICAL INPUT	Optical device	Type	InGaAs pin photodiode		
	Wavelength	nm	1200...1600		1550
	Detection bandwidth	MHz	1...3000		
	Optical input power range	dBm	-10 ~ +2		
	Optical return losses	dB	<-40	> 40	> 40
RF OUTPUT	Frequency range	MHz	47...2150	47...1006	
	Impedance	ohm	75		
	Output return losses	dB	> 11		
	Optical AGC operating range	dB	0 ...18		
	Max. output level ⁽¹⁾ (2 tone, IMD ≥ 60 dB)	dBμV	84	80	80
GENERAL	Mains voltage	V~	196 - 264		
	Current consumption	mA	30 max.	19 max.	
	Power consumption	W	3	1.7	
	RF connector	Type	F female		
	Optical connector	Type	SC/APC		
	Operating temperature	°C	-5 ... +45		
	Weight	g	230		
	Ingress protection level	IP	20		
Dimensions (WxHxD)	mm	145 × 60 × 35			

¹ Max. output level for CSO and CTB ≥ 60dB.



OPTICAL SPLITTERS

FO SPLITTERS

FO SPLITTERS T.OX SERIES

Comprehensive range of rack-mounted optical splitters and no chassis versions, available in 2,4,8, 16 and 32 ways.

Increase the number of FO links with this range, or use them as attenuators to fit the FO network's requirements. Comprise SC/APC connectors.

Optical Splitters – T.OX Rack Mounted – SC/APC Connectors

Reference	2337	2339	234401	234501	234601	
No. of outputs	2	4	8	16	32	
INPUT / OUTPUT	Wavelength	nm 1310 - 1550				
	Optical connector	SC/APC				
	Insertion losses 1310/1550 nm	≤ 4.1	≤ 7.5	≤ 11	≤ 13.7	≤ 17.5
	Uniformity	dB ≥55				
	Directivity	dB ≥55				
GENERAL	Return losses	≤ 0.6	≤ 0.8	≤ 0.8	≤ 1.2	≤ 2
	Ingress protection level	IP 20				
	Dimensions (W x H x D)	mm 50 x 216 x 175		mm 73 x 216 x 175		

Optical Splitters – No chassis – SC/APC Connectors (to be used with Fibre enclosures)

Reference	233750	233950	234450	234550	234650
No. of outputs (ways)	2	4	8	16	32
Connectors	type SC/APC				
Fiber	type Single-mode (SM) G657A1				
Diameter	µm 900				
Wavelength	nm 1260...1650				
Insertion loss (IL)	≤4.1	≤7.5	≤10.5	≤13.5	≤17.5
Return loss (RL)	dB ≥55				
Uniformity	≤0.6	≤0.8	≤0.8	≤1.2	≤2

FO SPLITTERS

Range of wall mounted optical splitters with FC/PC connectors available in 2,3,4 and 8 ways.

Optical Splitters – Wall Mounted – FC/PC Connectors

Reference	235701	235801	235901	236001
Outputs	2	3	4	8
Connectors	Type FC/PC			
Wavelength	nm 1310 / 1550			
Insertion losses	4	5.5	7	10
Fibre type	Monomode (SM)			
Dimensions (W x H x D)	mm 115 x 151 x 23			



Ref.	Description	
2337	Optical Splitter 1310/1550nm SC/APC 2W	4dB
2339	Optical Splitter 1310/1550nm SC/APC 4W	7dB
234401	Optical Splitter 1310/1550nm SC/APC 8W	10dB
234501	Optical Splitter 1310/1550nm SC/APC 16W	14dB
234601	Optical Splitter 1310/1550nm SC/APC 32W	17dB



Ref.	Description	
233750	Optical Splitter SC/APC 2W - No chassis	4dB
233950	Optical Splitter SC/APC 2W - No chassis	7dB
234450	Optical Splitter SC/APC 2W - No chassis	10dB
234550	Optical Splitter SC/APC 2W - No chassis	14dB
234650	Optical Splitter SC/APC 2W - No chassis	17dB



Ref.	Description	
235701	Optical Splitter 1310/1550nm FC/PC 2W	4dB
235801	Optical Splitter 1310/1550nm FC/PC 3W	5.5dB
235901	Optical Splitter 1310/1550nm FC/PC 4W	7dB
236001	Optical Splitter 1310/1550nm FC/PC 8W	10dB

FIBRE OPTIC SPLICERS

HANDHELD SPLICER (F.O. FUSION BY ELECTRIC ARC)

Handheld fusion splicer capable of doing a **splice in 7 seconds**. Easy to carry thanks to its **small weight and dimensions**.

The product also includes a carry case with all the necessary accessories. Its **interface is very user friendly and intuitive**, all actions can be performed with just 3 buttons.

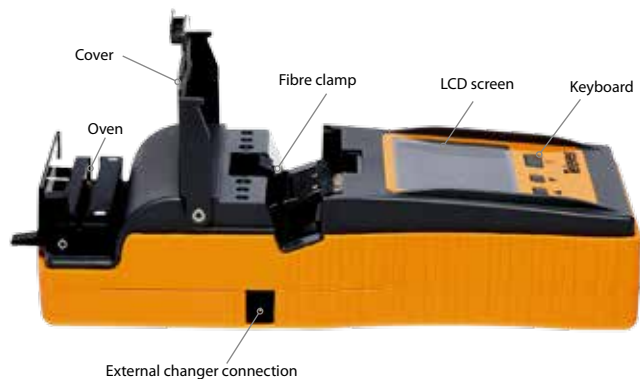
MAIN FEATURES

- ✓ It automatically detects problems before splicing:
 - It measure the angles in which the fibre has been cut.
 - It detects faults with the fibre (usually dust)
- ✓ It also **checks that splicing was correctly done** by pulling and measuring the optical losses.
- ✓ **Alignment of the fibre** for cladding.
- ✓ **Automatically clean** the electrodes.
- ✓ **It saves a log with information** of the splicing that can be exported to a different format.
- ✓ **Up to 60 splices** from a single full battery charge.
- ✓ Li-Ion (7.4 & 3000mAh)
- ✓ The possibility of **re-charging battery whilst using the splicer**.



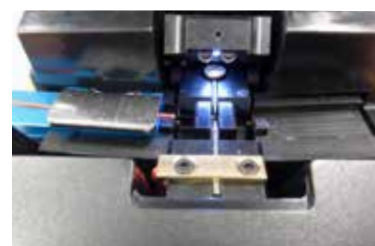
Ref.	Description
232130	F.O. Kit fusion handheld splicer

MAKE IT POSSIBLE WITH THE POWER OF THE LIGHT

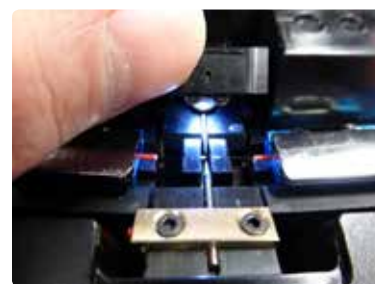




EACH FIBRE ON ITS BRACKET



PLACING THE FIBRE



FIBRES SHOULD BE VISIBLE IN THE SCREEN

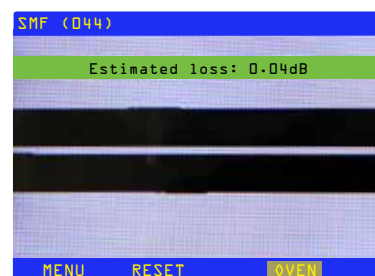
COMPOSITION

- ✓ Hand-held fusion splicer.
- ✓ Fibre cleaver with head insertion (cutting blade specified for 16,000 cuts).
- ✓ Fibre stripper (pre-set for 250 and 900 microns).
- ✓ Heads for 900µm-fibre (2 units, blue).
- ✓ Heads for 250µm-fibre (2 units, black).
- ✓ Network adaptor.
- ✓ Charger cable with interchangeable plug: European + UK.
- ✓ Internal battery Li-ION (3000 mA h).
- ✓ Carrying case.
- ✓ User manual.

Reference	232130	
General		
Average loss per splice	dB	0,03 @ Single Mode fibre 0,01 @ Multi Mode fibre
Average time per splice	s	7
Average time for the heat-shrink sleeve heating	s	60 @ cannula: 45mm 90 @ cannula: 60mm
Fusion programmes	2 pre-configured programmes (SM and MM)	
Fibre alignment	By cladding: Axial (automatic) Radial (fixed, over V-Groove)	
Screen	2,8" colour LCD, 320x240p	
Lens magnification	140x	
Languages	Spanish, English, German, French, Italian, Polish, Russian, Dutch, Swedish, Czech, Turkish	
Interfaces		
Mini USB	Updates	
External SD (not included)	Save and export fusion data	
Powering		
Mains voltage	Vac	100 - 240
Mains frequency	Hz	50 / 60
Battery	Li-ION (7,4V & 3000mAh)	
Operating range		
Operating temperature	°C	0 ... 45
Storage temperature	°C	-20 ... 60
Relative humidity	%	< 95%



CUTTING ANGLE MEASUREMENT



OPTICAL LOSS MEASUREMENT

FIBRE OPTIC SPLICERS

MECHANICAL SPLICER AND LIGHT GENERATOR

MECHANICAL SPLICER

Mechanical splicer tool with accessories (Ref. 2341). Typically used for emergency repairs and fibre testing.

Mechanical splices are fast, widely used as temporary restoration or for splicing multimode fibres in a premises installation.

MAIN FEATURES

- ✓ Fibre Optic mechanical splicer (Ref. 2322)
- ✓ Mechanical Splicer: 5 units (2328)
- ✓ SC/APC connectors: 10 units. (Ref 2329)
- ✓ Fibre Optic cleaver (Ref 2323)
- ✓ Fibre Optic stripper (Ref 2324)
- ✓ FO connector cleaning tape
- ✓ 10 isopropyl alcohol wet towels
- ✓ 10 cleaning pens and carrying case



2341

OPS - 3L OPTICAL LIGHT SOURCE

Rugged, hand-held device to generate an optical output at three different wavelengths and perform measurements of the insertion losses over a FO link.

Ref.	Description
2340	OPS-3L Optical Light Source (1310, 1490 and 1550 nm).

Reference	2340	
Screen	LCD 128x64 px	
Languages	Universal	
Wavelengths	nm	1310, 1490, 1550
Modulation	270Hz, 1kHz, 2kHz Automatic ID (H-Series)	
Tolerance	nm	±20
Laser	Fabry Pèrot	
Power	dBm	0 to -8 (in 1dBm steps)
Short term stability (15 min.)	dB	± 0.1
Long term stability (2 hours)		± 0.3
Power		
Battery	Type	Li-Ion 7.4 V
External power	Vdc	12
Consumption (max.)	W	12
Autonomy	h	26



2340

MAIN FEATURES

- ✓ 3 different wavelengths (1310, 1490 and 1550 nm)
- ✓ User-selectable power level (0 to 8 dBm)
- ✓ Option to disable the laser for maintenance work
- ✓ Signal modulation
- ✓ Power-saving mode with automatic shut-down
- ✓ Automatic detection of the wavelength when using H-Series Analyzers



GPON SOLUTIONS

TV OVER GPON (*Gigabit-capable Passive Optical Network*)

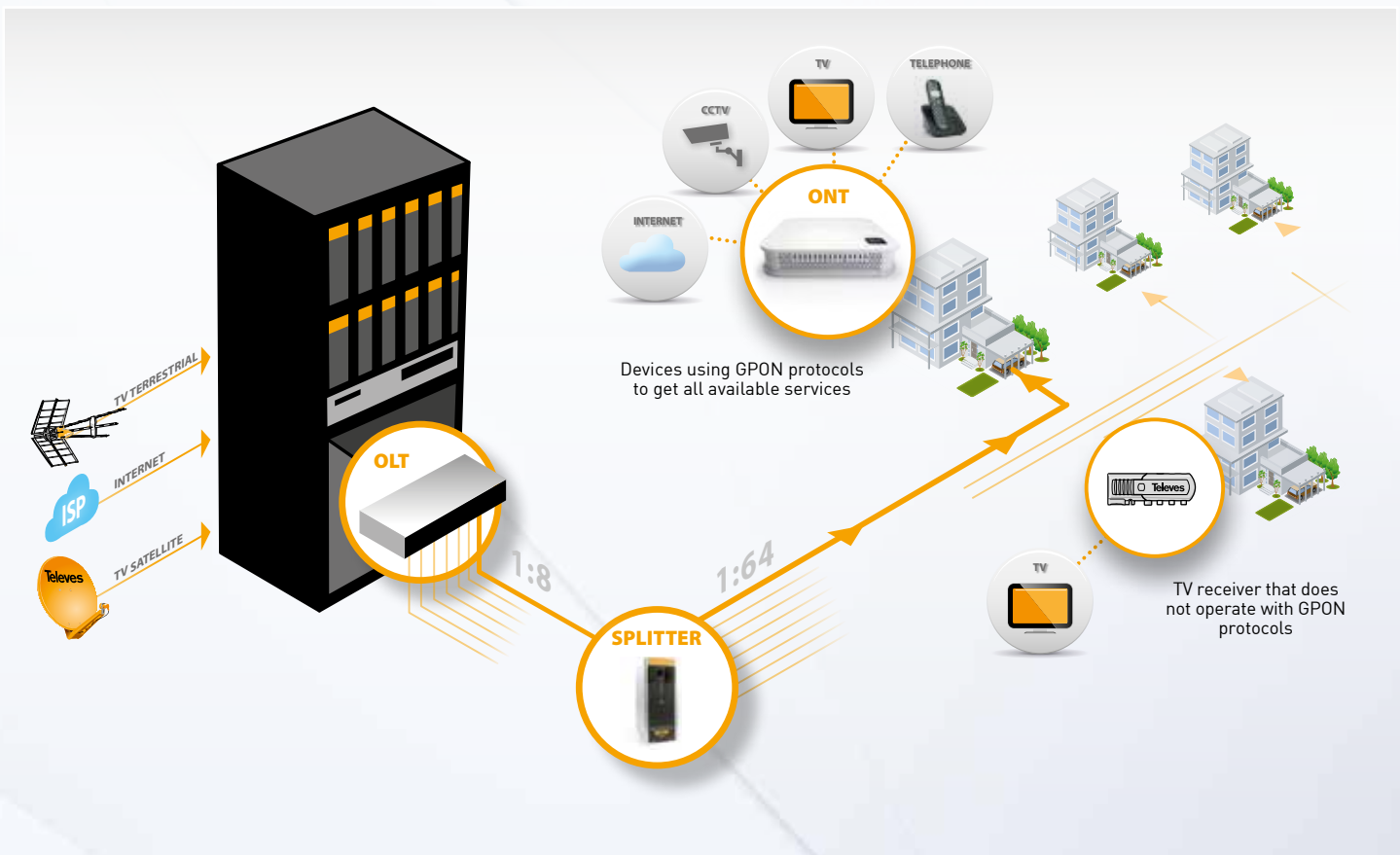
Generally used over fibre optics infrastructures that make use of a device (called OLT) that multiplexes the data traffic between the user and services. Users are linked to this network by single wavelength channels, or lambdas, which represent a better service/cost ratio than other FTTH technologies.

On the other hand, over the last decade Triple Play services (TV, data and voice services offered altogether) have been largely deployed over broadband. These services travel through the physical layer as an unique high speed data stream.

The novelty of these two concepts can cause the wrong assumption that GPON and Triple Play are inevitably linked to each other.

Shall be highlighted that GPON refers not only to a specific type of network architecture down to the physical layer but to the definition of how the services are packed and configured. In a typical scenario, three lambdas at 1310, 1490 and 1550nm are assigned to downstream/upstream and CATV, respectively.

Typical architecture of a GPON network



Therefore, a **GPON network is not required to include IPTV services through the data streams**, since TV services can be sent over the third lambda (1550nm), freeing the other two to send broadband data and voice services only.

It is a clear advantage for those users that own the network and want to remain independent from the specific operator conditions on TV services offer.

GPON SOLUTIONS

OLT512 SERIES

OLT (OPTICAL LINE TERMINAL)



769401

The Optical Line Terminal OLT512 is the service provider compact end point for customers willing to deploy an FTTH infrastructure using GPON technology.

is a cost-effective solution that enables Quad Play services (Data, TV, telephone) for up to 512 subscribers with 2,5Gbps/1,24Gbps downstream/upstream bandwidth.

Specially designed for medium/small residential environments and compatible with ITU-T G.984X , OLT512

MAIN FEATURES

- ✓ Range up to 60km
- ✓ Standard Gigabit Ethernet Uplinks 4x1GbE / 4x10GbE
- ✓ Equipped with test output
- ✓ Remote operation and monitoring

Ref.	Description
769401	OLT512
769410	SFP GPON
769411	SFP Gbe
769412	SFO 10Gbe

Reference	769401	
GPON		
Downstream / Upstream bit rate	Gbps	2,488 / 1,244
AES Encryption		
ONT per PON (512 subscribers)		>64
Logical Range	Km	60
Maximun Differential Distance	Km	20
GPON Type B redundancy		
L2 layer		
IEEE 802.1Q VLAN tagging and Q-in-Q VLAN stacking		
VLAN-ID conversion to GEM port-ID		
Load balancing		
Priority management		
Full wire speed GPON Performance		
IPTV Features		
IGMP v2 / v3		
Multicast		
IPTV streams		>1,024
Management		
Local management by CLI and HTTP/HTTPS browser		
Remote management using SSH, Telnet and SNMTP protocols		
General		
Temperature conditions	°C/°F	5 to +45 / 41 to 113
Relative Humidity Range	%	95
Power supply	Vdc	-40.5 to -57.0
Power consumption	W	<110
Ventilation noise level	dB	<60
Dimensions (WxHxD)	mm / inch	483 x 44.45 x 248 / 18.93 X 1.75 X 9.75



769410



769411



769412



OLT512 SERIES

ONT (OPTICAL NETWORK TERMINAL)



769502

The Optical Network Terminal solutions from Televés are the right choice for those who implement a GPON optical network at the subscriber's home.

Compliant with recommendation ITUG.984.x, supports **multiple-play service** enabling data High Speed Internet (HSI), VoIP, WiFi, TV (IPTV and RF Overlay).

MAIN FEATURES

- ✓ Broadband data rates 2,5Gbps/1,25Gbps (downstream/upstream)
- ✓ Legacy nx64 Kbps and E1 business services support
- ✓ Mass remote management / full remote control without user intervention
- ✓ Reliable and long live equipment solution with several Indoor/Outdoor mount options

Ref.	Description
769501	GPON ONT OFFICE (4xGbE, 2xFXS, 2xUSB, WLAN)
769502	GPON ONT HOME (4xGbE, 2xFXS, 2xUSB, WLAN, RF)
769504	GPON ONT HOME AC (4xGbE, 2xFXS, 2xUSB, RF, WLAN ac)
769506	GPON ONT OFFICE AC (4xGbE, 2xFXS, 2xUSB, WLAN ac)
769507	GPON ONU BASIC (1xGbE)
769508	GPON ONU STANDARD (1xGbE, RF)

Referencia	769501	769502	769504	769506	769507	769508
RF-Overlay	-	✓	✓	-	-	✓
WiFi (802.11 b/g/n)	✓	✓	✓	✓	-	-
USB	-	-	✓	✓	-	-
FXS Ports	2	2	2	2	-	-
ETH Ports 10/100/1000BASE-T	2	2	2	2	-	-
NAT/NAPT	4	4	4	4	1	1
Firewall	✓	✓	✓	✓	-	-
VPN pass-through	✓	✓	✓	✓	-	-
PPPoE termination	✓	✓	✓	✓	-	-
OMCI	✓	✓	✓	✓	-	-
TR-069	✓	✓	✓	✓	-	-
CLI	✓	✓	✓	✓	-	-
WebGUI	✓	✓	✓	✓	-	-
WebGUI	✓	✓	✓	✓	-	-
General						
Temperature conditions	°C / °F		-5...65 / 23...149			
Relative Humidity Range	%		0...95			
Power supply	W	19	19	19	7	7
Dimensions (WxHxD)	mm / inch		210 x 40 x 210 / 8.25 x 1.57 x 8.25			

GPON SOLUTIONS

OPTICAL AMPLIFIER

HIGH POWER 1550NM OPTICAL AMPLIFIER 8 CH WITH WDM

Based on YEDFA technology, **High power amp-8CH with WDM ref. 234228** is a stand alone unit designed to support the demands of the next PON Technologies.

The high power amp-8CH with WDM is a unit that complements FibreData OLT512 ref.769401, for the reduced GPON scenarios, providing with two compact solutions 8 GPON interfaces, amplification of the RF Overlay channel and its multiplexing.

The high power amplifier is also available **on 1U Rack and double PSU ref.769401**, for powering the OLT.



▲ 234228

MAIN FEATURES (ref. 234228 & 769610)

- ✓ Video Overlay multiplexing with GPON signals
- ✓ Amplification of the Video Overlay
- ✓ Typical output power of 20 dBm

Ref.	Description
234228	High Power 1550nm Optical Amplifier 8CH with WDM
769610	High Power 1550nm Optical Amplifier 8CH with WDM and double PSU, for 1U rack mounting

Reference			234228 / 769610
OPTICAL Video Overlay INPUT	Input RF Overlay	dBm	-10...+10
	Input connector	Type	1 x SC/APC
	Operating wavelength	nm	1543...1565
OPTICAL GPON INPUT	Insertion Loss (1310nm & 1490nm)	dB	<1
	Input connector	Type	8 x SC/APC
	Operating wavelength	nm	1310 ± 20 - 1490 ± 20
OPTICAL OUTPUT	Output optical power per port (1550nm)	dBm	20 ± 0.5 @ 1550nm
	Uniformity	dB	0.5
	Output connector	Type	SC/APC
	Noise figure	dB	Typ 5 (Pin=0 dBm 1550nm) Max 7
	Optical return losses	dB	≥ 40
GENERAL	Powering	Vdc	24
	Consumption @ 24 Vdc	A	0.7
	Ingress protection level	IP	20
	Operating temperature	°C / °F	-5...45 / 23...113
	Weight	g	2,700
	Dimensions (WxHxD)	mm / inch	111 x 218 x 194 / 4.37 x 8.58 x 7.63



HIGH POWER 1550NM OPTICAL AMPLIFIER 8 CH WITH WDM AND DOUBLE PSU

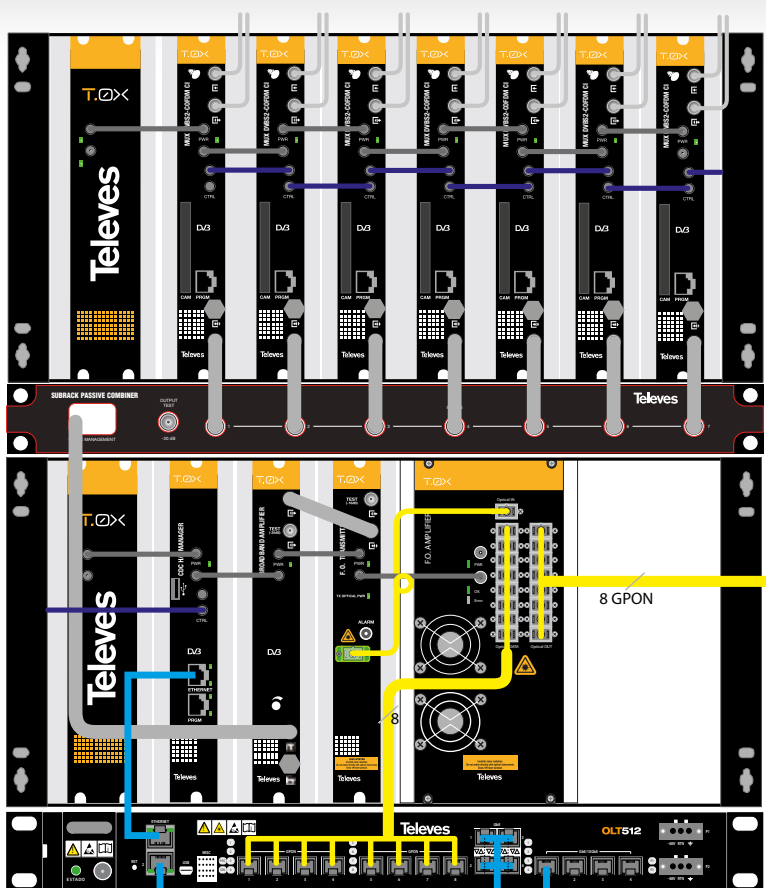
MAIN FEATURES (ref.769610)

- ✓ “Hot swappable” double PSU of -48Vdc
- ✓ In conformity with EN61000-4-2,4,5,6,8,11, EN55024, EN6100-6-2 (EMC immunity)
- ✓ In conformity with EN55022 (EMC emissions)

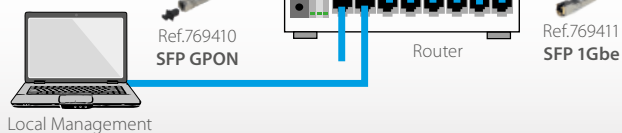
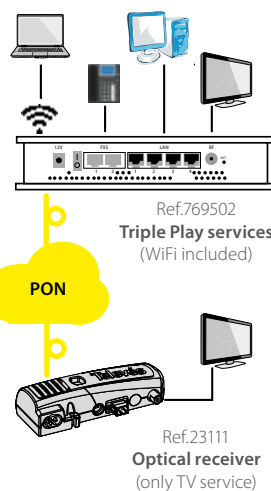


▲ 769610

Reference			769610
PSU	AC voltage	VAC	80 - 264
	Frequency	Hz	47 - 63
	DC voltage	Vdc	-48
	Max. output current	A	9
	Max. output power	W	432
	Efficiency	%	>89
	Protection Index	IP	20
	Dimensions (WxHxD)	mm / inch	483 x 44.45 x 390 / 19 x 1.75 x 15.35



T.0X Video Overlay Headend EXAMPLE



Data services VLAN (factory default)
 -VLAN100_GbE1: HSI
 -VLAN200_GbE2: VoIP
 -VLAN500_GbE3: Remote Management

CABLES & ACCESSORIES

FO CABLES

PRE-TERMINATED FIBRE CABLE

Pre-connectorized (FC/PC or SC/APC) patch cords, made of bending loss insensitive single-mode optical fibre (ITU-T G.657-A2 recommendation).



2361

MAIN FEATURES

- ✓ High transmission speed and low attenuation
- ✓ Low Smoke and Halogen Free (LSFH)
- ✓ Min. bending radius: 30 mm
- ✓ Ø 3mm cable terminated with connectors FC/PC (9mm)
- ✓ Flexible inner shielding (1.3 mm diameter) consisting of a stainless steel fold and aramid yarns



232641

Ref.	Description
2361	3m FC/PC preterminated - Monomode - LSFH G657A
236101	5m FC/PC preterminated - Monomode - LSFH G657A
236102	10m FC/PC preterminated - Monomode - LSFH G657A
236103	20m FC/PC preterminated - Monomode - LSFH G657A
236104	30m FC/PC preterminated - Monomode - LSFH G657A
236105	40m FC/PC preterminated - Monomode - LSFH G657A
236106	50m FC/PC preterminated - Monomode - LSFH G657A
236107	75m FC/PC preterminated - Monomode - LSFH G657A
236108	100m FC/PC Drum preterminated - Monomode - LSFH G657A
236109	200m FC/PC Drum preterminated - Monomode - LSFH G657A

Ref.	Description
232640	10m SC/APC preterminated - Monomode - LSFH G657-A2
232641	15m SC/APC preterminated - Monomode - LSFH G657-A2
232642	20m SC/APC preterminated - Monomode - LSFH G657-A2
232643	25m SC/APC preterminated - Monomode - LSFH G657-A2
232644	30m SC/APC preterminated - Monomode - LSFH G657-A2
232645	40m SC/APC preterminated - Monomode - LSFH G657-A2

Reference		2361	236101	236102	236103	236104	236105	236106	236107	236108	236109
Insertion losses	A1, A2	dB									
Return losses	A1, A2										
Attenuation		dB/Km									
Connectors		FC/PC									
Fibre	Type	Monomode (SM) G657A									
Outer sheath	Material	LSFH PVC									
	Ø mm	3									
	Colour	grey									
Available lengths	m	3	5	10	20	30	40	50	75	100	200

Reference		232640	232641	232642	232643	232644	232645
Fibre	Type	Monomode ITU-T G.657A2					
Optical connectors	Type	SC/APC					
Jacket material	Type	LSFH					
Max. Tensile load installation per fiber	N	1000					
Max. Tensile load permanent per fiber	N	500					
Operation temperature	°C	-20 ... +70					
Max. Attenuation	dB	≤0,8 (1310, 1490, 1550 nm), (including connectors)					
Insertion losses (IL)	dB	< 0,5 (per fibre)					
Return loss (RL)	dB	> 60 (per fibre)					
Min. Bending radius	mm	15					
Outer diameter	mm	3					
Length	m	10	15	20	25	30	40



MULTI STRAND MONOMODE FIBRE CABLES

Televes' multi-strand range is made up by 2, 12, 24 and 48 G.657-A2 fibres, with low bending sensibility.

FIBRE'S TIGHT BUFFER Ø 900µm

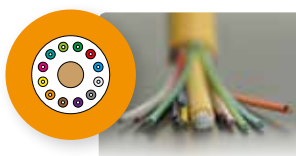
Ref.	Description
2 MONOMODE FIBRE	
231901	2 Monomode ITU-T G.657-A2 Fibre LSFH (300m)
231902	2 Monomode ITU-T G.657-A2 Fibre (750m)
232001	2 Monomode ITU-T G.657-A2 Fibre LSFH (200m)
232002	2 Monomode ITU-T G.657-A2 Fibre LSFH (500m)
12 MONOMODE FIBRE	
231801	12 Monomode ITU-T G.657-A2 Fibre LSFH (2km)
231802	12 Monomode ITU-T G.657-A2 Fibre LSFH (cut to length)



▲ 48 fibres
231701 / 231702



▲ 24 fibres
231601 / 231603



▲ 12 fibres
231801 / 231802



▲ 2 fibres - Indoor
231901 / 231902



▲ 2 fibres - Outdoor
232001 / 232002

FIBRE'S TIGHT BUFFER Ø 250µm

Ref.	Description
24 MONOMODE FIBRE	
231601	24 Monomode ITU-T G.657-A2 Fibre LSFH (2km)
231603	24 Monomode ITU-T G.657-A2 Fibre LSFH (cut to length)
48 MONOMODE FIBRE	
231701	48 Monomode ITU-T G.657-A2 Fibre LSFH (800m)
231702	48 Monomode ITU-T G.657-A2 Fibre LSFH (cut to length)



▲ 48 fibres
231711 / 231712



▲ 24 fibres
231611 / 231612

Reference	231701	231702	231601	231603	231801	231802	231901	231902	232001	232002
Number of Fibres	48		24		12		2			
Fibre type	9/125 (G657A2)									
Attenuation	dB/Km		≤ 0.4 (1310 nm); ≤ 0.3 (1550 nm)							
Fibre tight sheath	Material		LSFH and flame retardant							
	Ø mm		0.9 ± 0.05							
Cable sheath	Material		LSFH and flame retardant							
	Ø mm		17.7 ± 0.4	8.0 ± 0.2	7.5 ± 0.3	3.5 ± 0.2	4.8 ± 0.2			
	colour		orange							black
Minimum bending radius	10 x Ø				10 x Ø		5 x Ø		10 x Ø	
Tensile strength	N		1320		1000		500		1200	
Shape recovery	N/100mm		1000		1000		500		1000	
Work temperature	°C		-20...+70							
Pack	800 m	cut to length	2 km	cut to length	2 km	cut to length	300 m	750 m	200 m	500 m

CABLES & ACCESSORIES

BREAKOUT SPLICE BOXES & ENCLOSURES

BREAKOUT SPLICE BOXES

The new breakout splice boxes can be used as a fibre interconnection or termination point. Its design allows it to be used to house either fibre cable or a 2 or

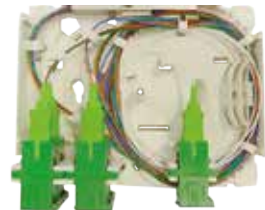
4 way fibre splitter. It is possible to attach it to a wall with screws, to fit it inside a pattress box or it could also be attached to a DIN rail.



▲ 231526

Ref.	Description	Fibres	Connectors
231502	Breakout Splice Box	2 or 4	2xSC/APC F Back to Back
231520	Breakout Splice Box	2	SC/APC F Back to Back + 15m of TWIN fibre spliced one end
231521	Breakout Splice Box	2	SC/APC F Back to Back + 25m of TWIN fibre spliced one end
231522	Breakout Splice Box	2	SC/APC F Back to Back + 40m of TWIN fibre spliced one end
231523	Breakout Splice Box	2	SC/APC F Back to Back + 55m of TWIN fibre spliced one end
231524	Breakout Splice Box	2	SC/APC F Back to Back + 70m of TWIN fibre spliced one end
231525	Breakout Splice Box	2	SC/APC F Back to Back + 85m of TWIN fibre spliced one end
231526	Breakout Splice Box	2	SC/APC F Back to Back + 100m of TWIN fibre spliced one end
231501	Breakout Splice Box	4	SC/APC F Back to Back

Box dimensions:
119 x 94 x 34 mm



Splitter configuration

BREAKOUT SPLICE ENCLOSURES

Ref.	Description	Up to	Dimensions
231310	Breakout Splice Enclosure	8 FIBRES	203x106x30 mm
231301	Breakout Splice Enclosure	12 FIBRES	153x264x67 mm
231302	Breakout Splice Enclosure	24 FIBRES	206x300x110 mm
233002	Breakout Splice Enclosure	48 FIBRES	370x350x95 mm



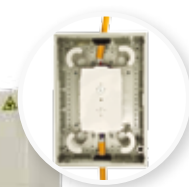
▲ 231310



▲ 231301



▲ 231302



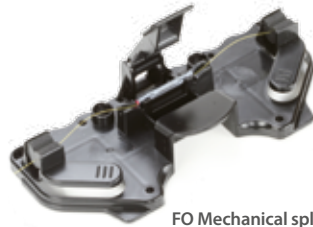
▲ 233002



FO TOOLS, CONNECTORS AND ACCESSORIES

TOOLS

Ref.	Description
2322	Mechanical Fibre Optics
2323	Cleaver Fibre Optics
232310	Kevlar scissors Fibre Optics
2324	Precision Stripper
2325	MultiFibre stripper
232910	Cleaning tape for FO connectors



FO Mechanical splicer
(Ref. 2322)



FO cleaver
(Ref. 2323)



Cleaning tape for FO connectors
(Ref. 232910)



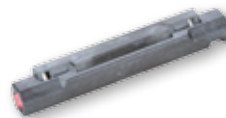
FO Kevlar scissors
(Ref. 232310)



MultiFibre stripper
(Ref. 2325)

CONNECTORS AND ACCESSORIES

Ref.	Description
2354	FO Connector for 2"FC-FC" pre-terminated patch cords interconnection
2356	FO Connector for a "FC-SC" connector change of 2 pre-terminated patch cords
2327	Splicing protection sleeve. Splicer Ref. 2321
2328	Mechanical splice. Splicers Ref. 2322 & 2341
2329	SC/APC connectors (with mounting tool)
232601	Single-mode pigtail SC/APC(m)-SC/APC(m)
233202	Adapter SC/APC(f)-SC/APC(f)
2364	1310/1550nm, FC/PC, 5 dB Attenuator
2365	1310/1550nm, FC/PC, 10 dB Attenuator
2366	1310/1550nm, FC/PC, 15 dB Attenuator



Mechanical splicer (Ref. 2328)
(Splicer Ref. 2322 or 2341)



4m monomode pigtail.
SC/APC (m) - SC/APC (m) (Ref. 232601)



Splicing protective sleeve (Ref. 2327)
(Splicer Ref. 2331 or 232101)



SC/APC connectors (mounting tool)
(Ref. 2329)



SC/APC(f) - SC/APC(f) adapter (Ref. 233202)



FO Connector for 2"FC-FC" pre-terminated
patch cords in termination (Ref. 2354)
(Splicer Ref. 2331 or 232101)



FO Connector for a "FS-SC" connector change
of 2 pre-terminated patch cords (Ref. 2356)
(Splicer Ref. 2331 or 232101)



Attenuator
(Ref. 2364)

Televes®

FIBRE OPTIC RANGE PRODUCT GUIDE **2016/2017**

